



Kentucky Department for Public Health
KY17-089 - Acute Hepatitis A Outbreak Weekly Report
Morbidity and Mortality Weekly Report (MMWR) Week 39, 2018
September 23, 2018 – September 29, 2018

Brief Description of Outbreak: In November 2017, the Kentucky Department for Public Health (DPH) identified an outbreak of acute hepatitis A. The increase in cases observed in Kentucky was well over the 10-year average of reported hepatitis A cases, and several cases have been infected with hepatitis A virus (HAV) strains genetically linked to outbreaks in California, Utah, and Michigan. Similar to hepatitis A outbreaks in other states, the primary risk factors have been illicit drug use and homelessness. A contaminated food source has not been identified, and HAV transmission is believed to have occurred through person-to-person contact. Below is a weekly and cumulative update on the outbreak. Please note that all data is preliminary and subject to change as additional reports are received.

In accordance with 902 KAR 2:020, cases of acute hepatitis A should be reported within 24 hours.

The case definition used for outbreak-associated acute hepatitis A cases is available upon request.

Table 1: Summary of Outbreak-Associated Acute Hepatitis A Cases*

Update for Week 39:		Total Case Counts: 8/1/2017 – 9/29/2018:	
Number of new cases (n=75):	Confirmed[^] - 0 Probable - 44 Suspected - 31	Total number of cases (n=1943):	Confirmed[^] - 546 Probable - 913 Suspected - 484
Number of counties with new cases:	34	Total number of counties with cases:	89 (74% of KY counties)
Number of individuals with specimens submitted for genotyping where results are available:	47	Number of individuals with specimens submitted for genotyping where results are available:	583 (30%)
Number of cases with genotype IB among those with genotype testing:	42	Total number of cases with genotype IB among those with genotype testing:	530 (91% of those tested)
Number of Hospitalizations:	34	Total Number of Hospitalizations:	1069 (55%)
Number of deaths Reported[†]:	0	Total number of deaths reported[†]:	14 (<1%)

* Cases are reported based on date of specimen collection

[^] Cases are generally confirmed weeks after submission for testing, so will only be reflected in total case counts.

[†] Deaths are defined as any outbreak-associated acute hepatitis A case with documentation of hepatitis A as a contributing factor to the individual's death.

Table 2: Cumulative Distribution of Cases by County

KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases, by County, August 1, 2017 – September 29, 2018*^#					
County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Adair	2	0	1	1	10.3
Allen	12	1	7	4	57.3
Anderson	8	0	7	1	35.5
Ballard	9	3	2	4	112.0
Barren	3	1	2	0	6.8
Bath	12	0	4	8	96.9
Bell	4	0	1	3	14.9
Boone	18	1	10	7	13.8
Bourbon	2	0	2	0	10.0
Boyd	158	91	36	31	329.3
Boyle	3	0	1	2	10.0
Breathitt	1	0	1	0	7.7
Bullitt	61	28	24	9	76.0
Butler	3	0	1	2	23.4
Campbell	25	1	21	3	27.0
Carlisle	1	0	1	0	20.6
Carroll	3	0	0	3	28.0
Carter	126	39	63	24	464.2
Casey	2	1	0	1	12.7
Christian	1	1	0	0	1.4
Clark	5	0	3	2	13.9
Clay	5	0	3	2	24.6
Daviess	2	0	1	1	2.0

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 29, 2018*^#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Edmonson	1	0	1	0	8.2
Elliott	15	1	4	10	199.4
Estill	4	0	3	1	28.0
Fayette	22	2	15	6	6.8
Fleming	3	0	0	3	20.8
Floyd	36	0	20	16	99.3
Franklin	21	0	15	6	41.6
Gallatin	2	0	1	1	22.8
Garrard	4	0	2	2	22.8
Grant	25	3	17	5	100.1
Grayson	17	2	13	2	64.5
Green	2	0	2	0	18.1
Greenup	56	28	17	11	157.7
Hardin	28	7	5	16	25.9
Harrison	2	0	2	0	10.6
Hart	1	0	1	0	5.3
Henry	10	2	5	3	62.5
Hickman	1	0	0	1	22.1
Hopkins	1	0	0	1	2.2
Jackson	2	0	2	0	14.9
Jefferson	619	289	226	104	80.3
Jessamine	2	0	0	2	3.7
Johnson	25	0	13	12	110.6
Kenton	39	2	35	2	23.6

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 29, 2018*^#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Knott	11	0	9	2	71.9
Knox	19	0	11	8	60.8
LaRue	2	0	1	1	14.1
Laurel	23	0	18	5	38.2
Lawrence	17	3	9	5	108.1
Lee	2	0	2	0	30.4
Leslie	5	0	3	2	48.4
Lewis	5	0	3	2	37.5
Lincoln	5	2	2	1	20.4
Logan	1	0	1	0	3.7
Madison	9	1	5	3	9.9
Magoffin	18	0	13	5	143.6
Marion	12	2	7	3	61.9
Marshall	2	0	1	1	6.4
Martin	23	0	14	9	200.8
McCracken	8	2	3	3	12.2
Meade	12	1	1	10	42.6
Menifee	11	0	7	4	170.4
Mercer	5	0	2	3	23.2
Metcalfe	1	0	1	0	9.9
Montgomery	57	5	40	12	204.1
Morgan	8	0	7	1	60.7
Nelson	14	4	5	5	30.7

**KY17-089 Distribution Of Outbreak-Associated Acute Hepatitis A Cases,
by County, August 1, 2017 – September 29, 2018*[^]#**

County	Total number of cases reported	Number of confirmed cases	Number of probable cases	Number of suspected cases	Incident Rate per 100,000 population
Ohio	6	0	3	3	24.8
Oldham	8	3	3	2	12.0
Owen	3	0	3	0	27.9
Pendleton	4	0	2	2	27.4
Perry	8	0	1	7	30.1
Pike	10	0	9	1	17.0
Powell	7	0	5	2	56.6
Pulaski	3	0	1	2	4.7
Rowan	38	0	25	13	155.0
Russell	1	0	0	1	5.6
Scott	2	0	0	2	3.6
Shelby	20	5	11	4	42.2
Simpson	5	0	5	0	27.6
Spencer	5	3	1	1	27.0
Taylor	32	2	24	6	125.6
Warren	22	7	11	4	17.1
Washington	5	0	3	2	41.2
Whitley	87	3	50	34	240.2
Wolfe	3	0	1	2	41.3
Total Number of Cases:	1943	546	913	484	43.6

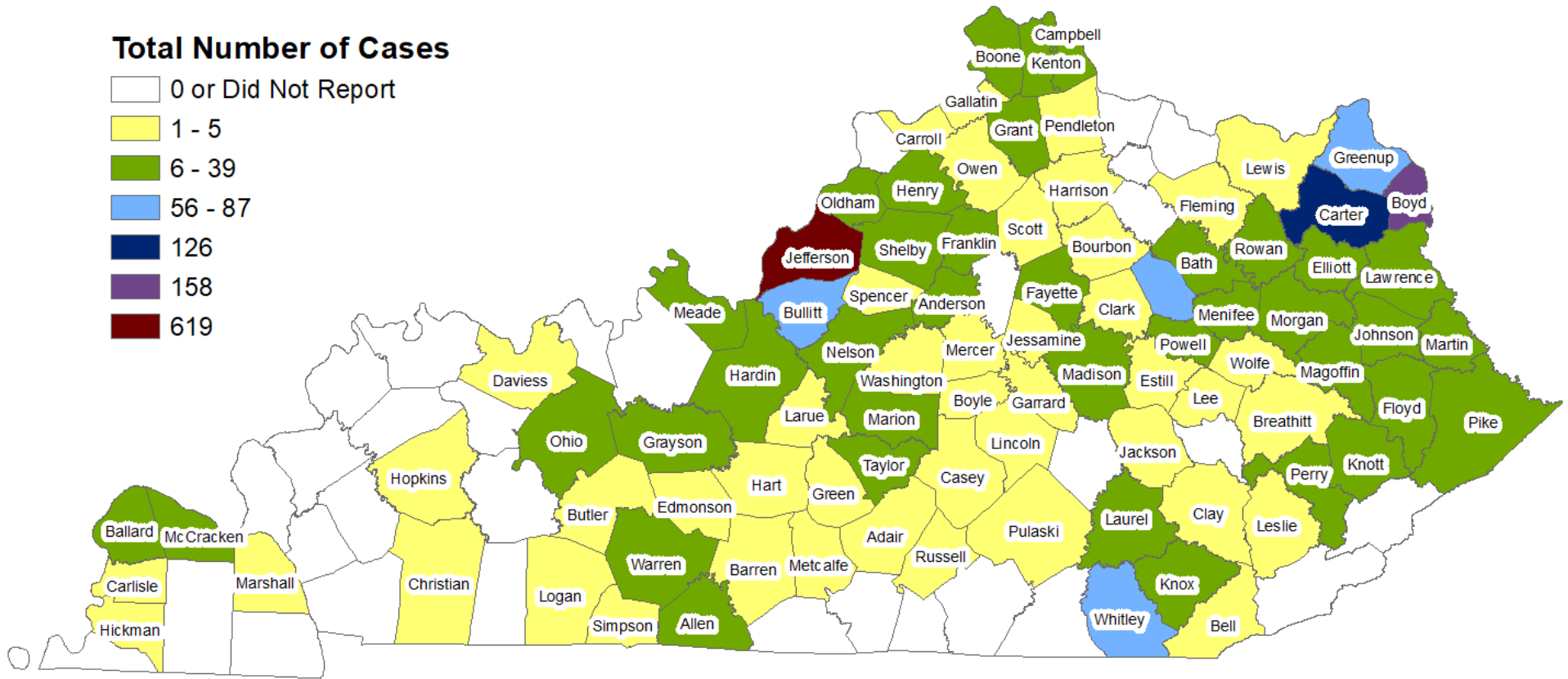
* Cases are reported based on date of specimen collection.

[^] Denotes a county where cases have not been previously identified.

As genotyping results become available, cases may be excluded if they do not meet the outbreak case definition. Cases in the following counties have been excluded from the outbreak case count this week: None.

Figure 1: Geographic Distribution of Outbreak-Associated Cases by County

KY17-089 Distribution of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - September 29, 2018

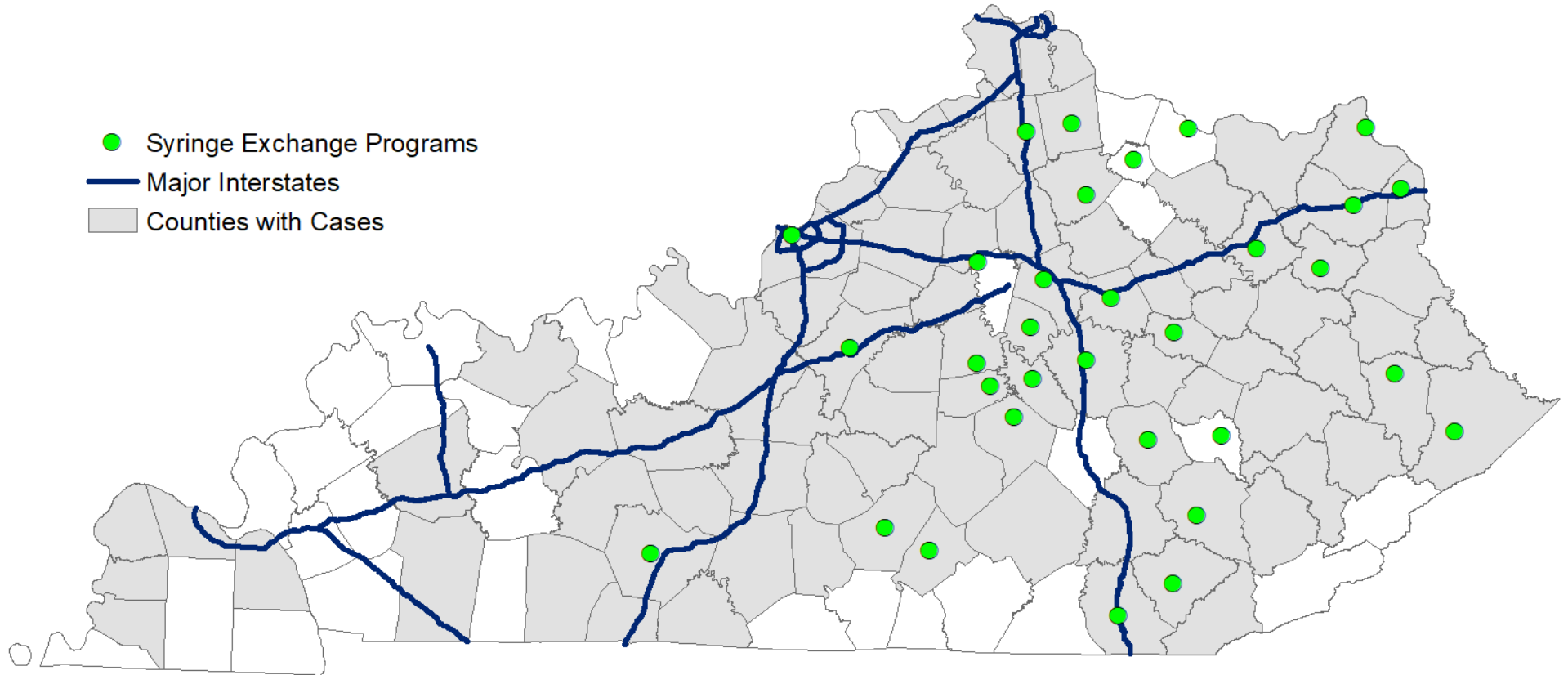


n = 89 counties with outbreak-associated cases

Counties where cases have not previously been identified: None.

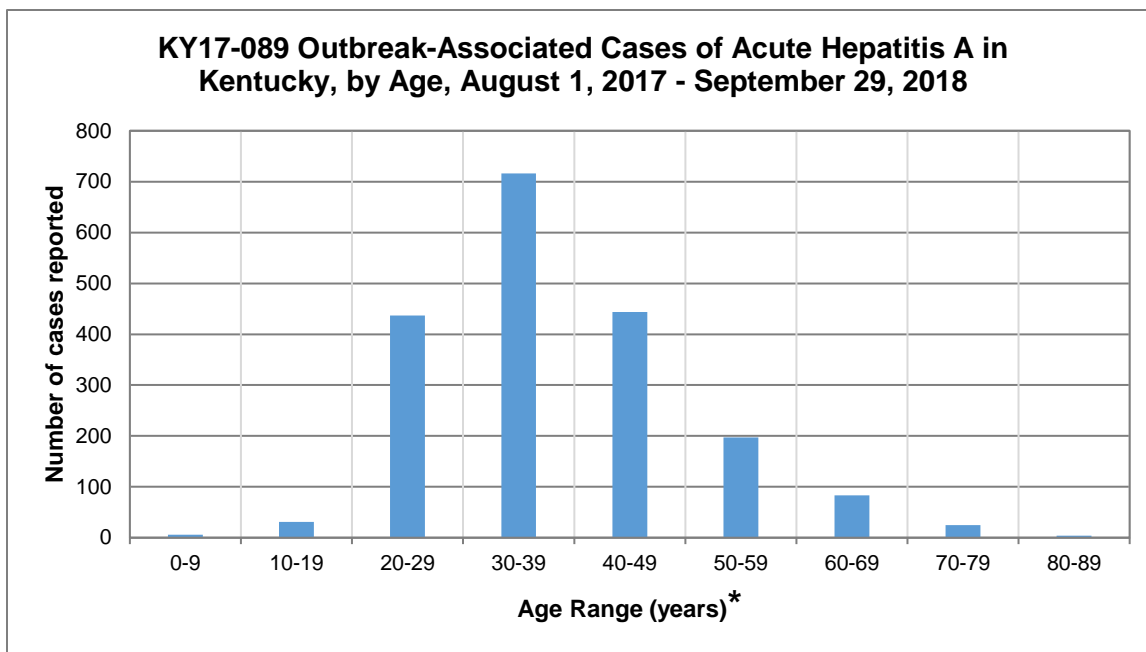
Figure 2: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs In Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - September 29, 2018



Major Interstates include I-24, I-264, I-265, I-275, I-471, I-64, I-65, I-69, I-71, I-75, Martha Lane Collins Bluegrass Parkway, and Wendell H Ford Western KY Parkway

Figure 3: Outbreak-Associated Cases by Age



* The mean age of cases is 38.0 years, and the median age is 36.0 years.

Table 3: Frequent Risk Factors of Outbreak-associated Cases

KY17-089 Risk Factors of Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 – September 29, 2018 ^{#^}	
Risk Factor	Number of Cases Reporting Risk Factor (n=1592) ^{* †}
Homelessness + No Illicit Drug Use	18 (1.1%)
Illicit Drug Use + No/Unk Homelessness	1006 (63%)
Homelessness + Illicit drug use	189 (12%)
No Outbreak-Related Risk Factors	357 (22%)

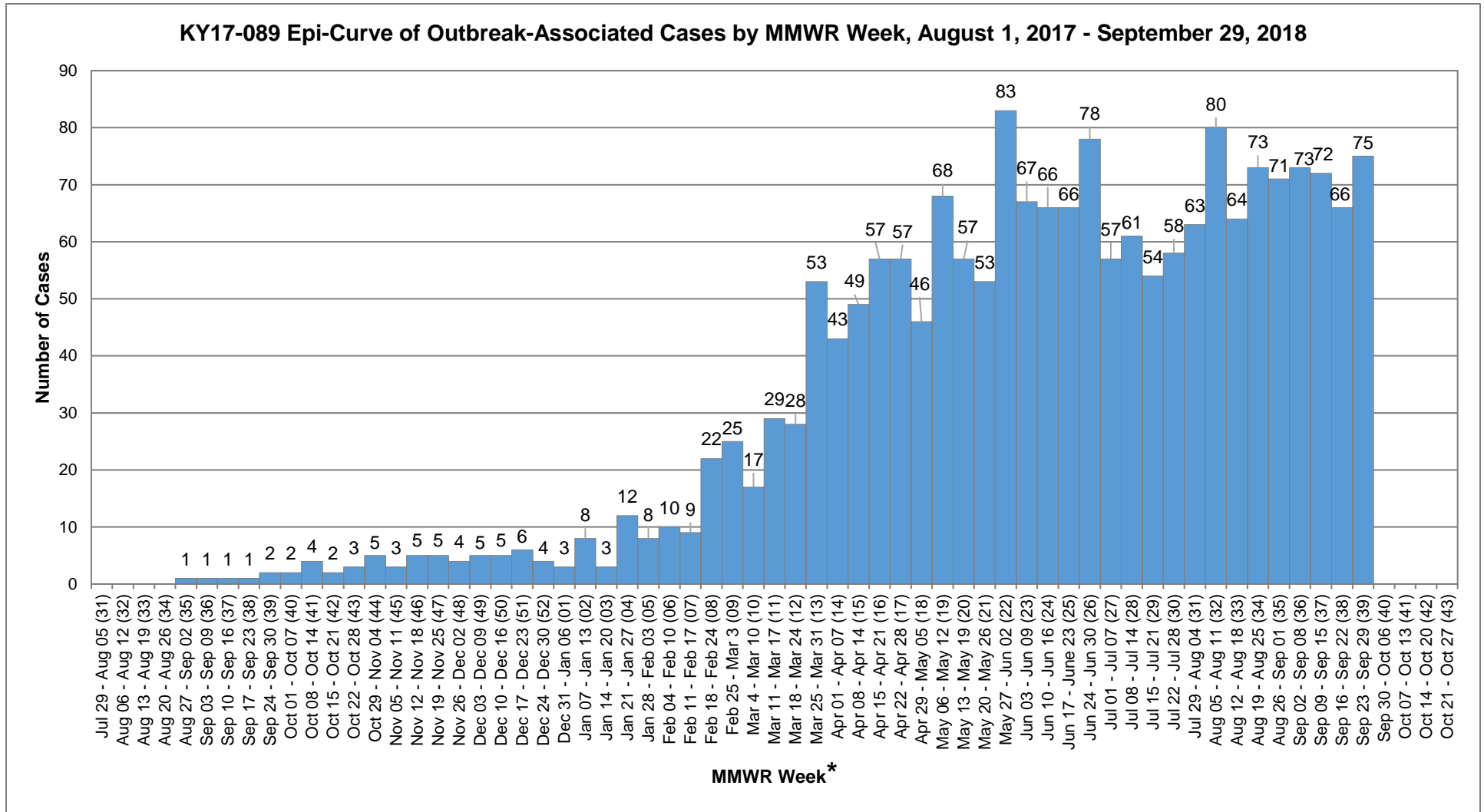
* Risk factor information is unavailable for 351 (18.1%) of all outbreak-associated cases.

† The categories below do not add up to the total number in this count due to other possible risk factor combinations not shown in the table.

At this point in the outbreak, MSM is no longer considered an outbreak-related risk factor. Percentages in this table may have changed due to removing MSM from risk factor combinations.

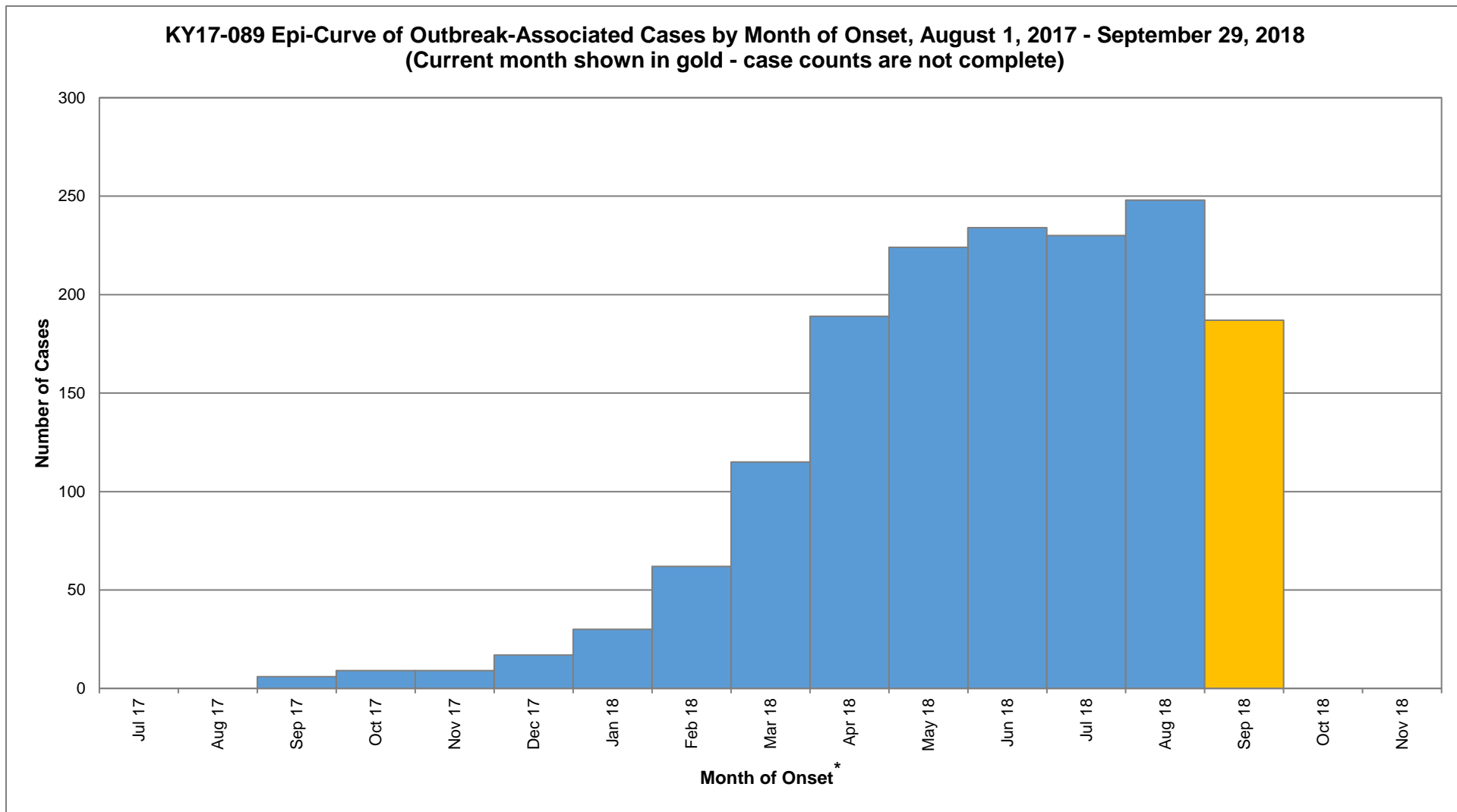
^ 31 MSM cases have been reported. Of those, 9 have reported no other risk factors.

Figure 4: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



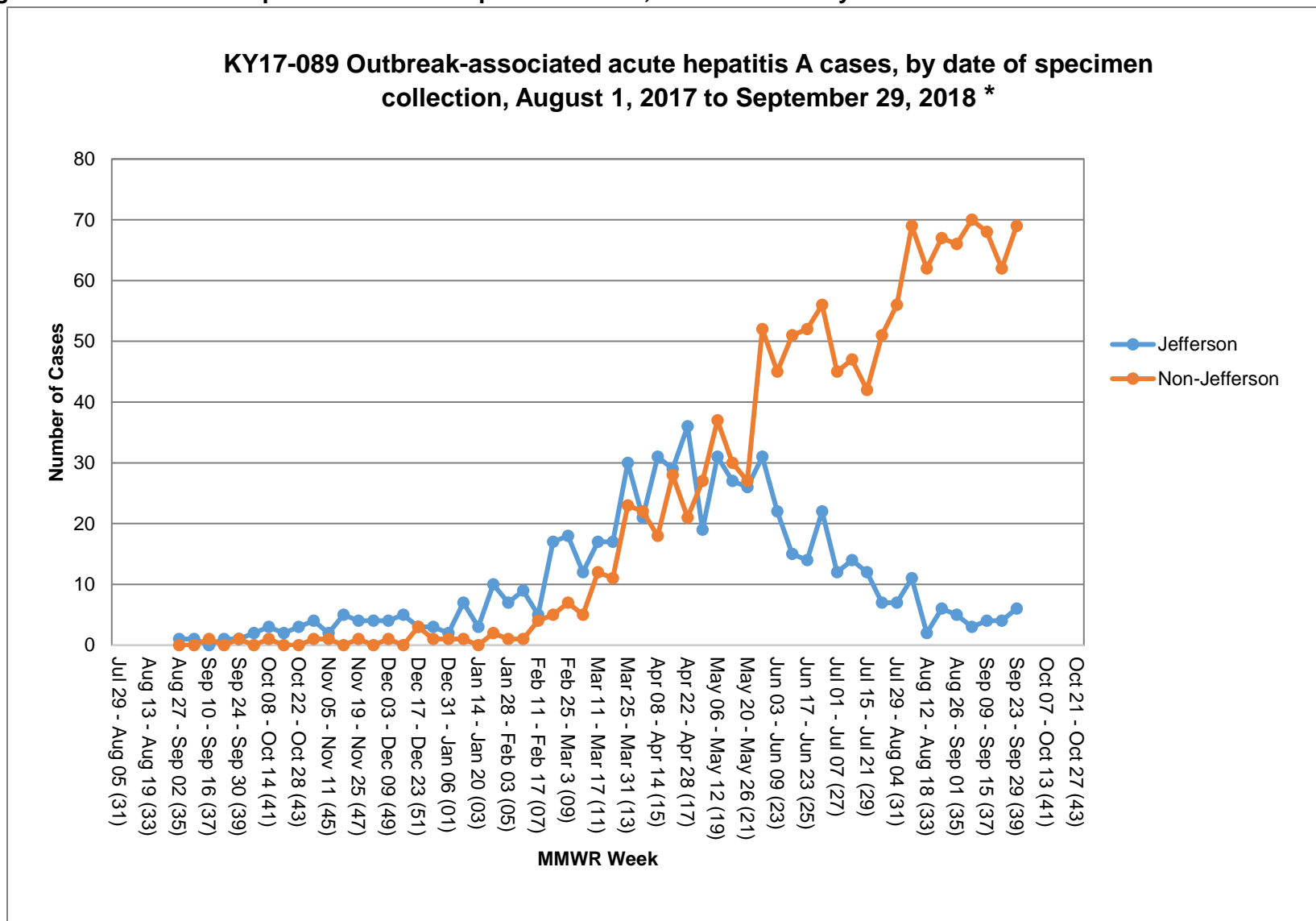
* MMWR weeks are based on date of specimen collection.

Figure 5: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases by Month of Onset



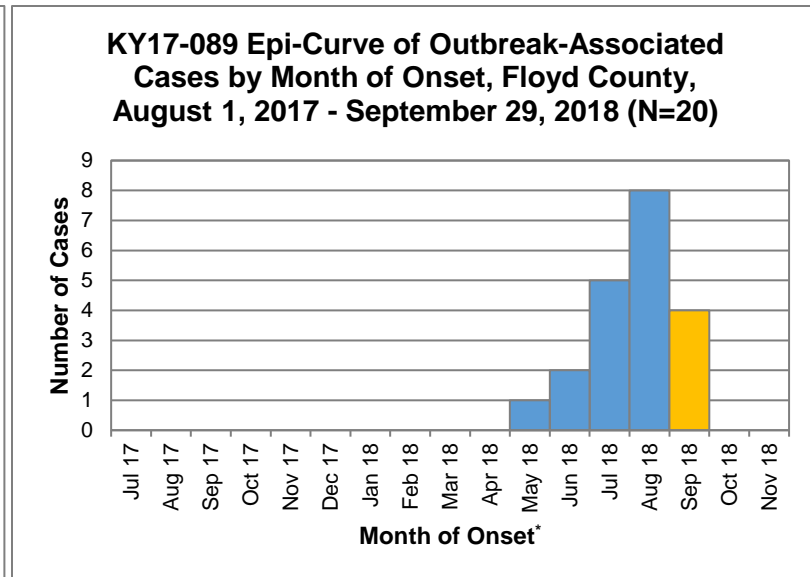
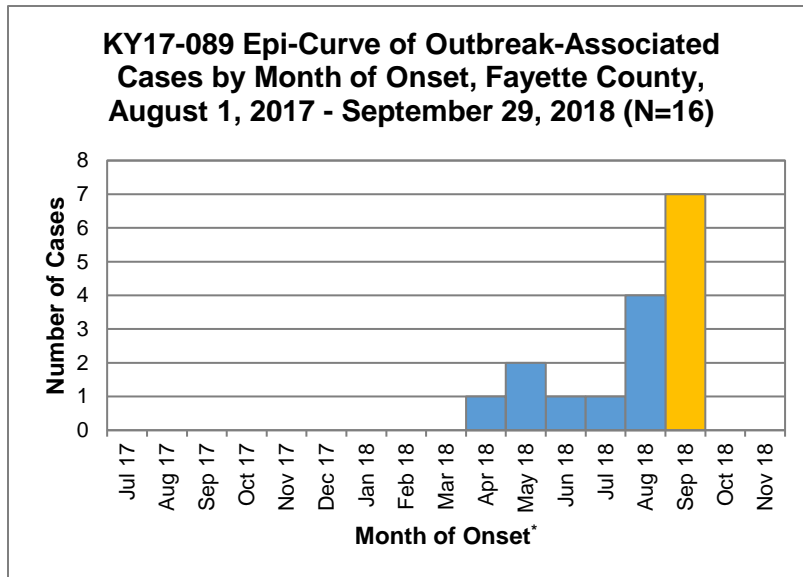
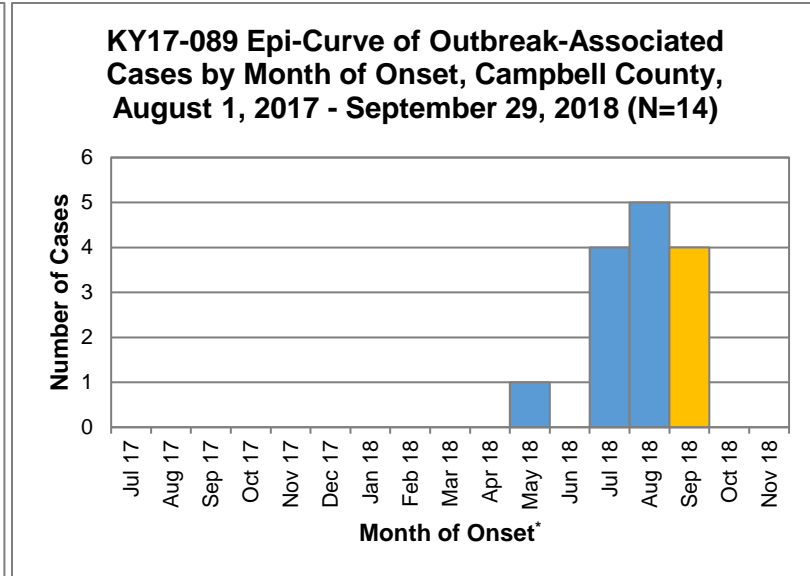
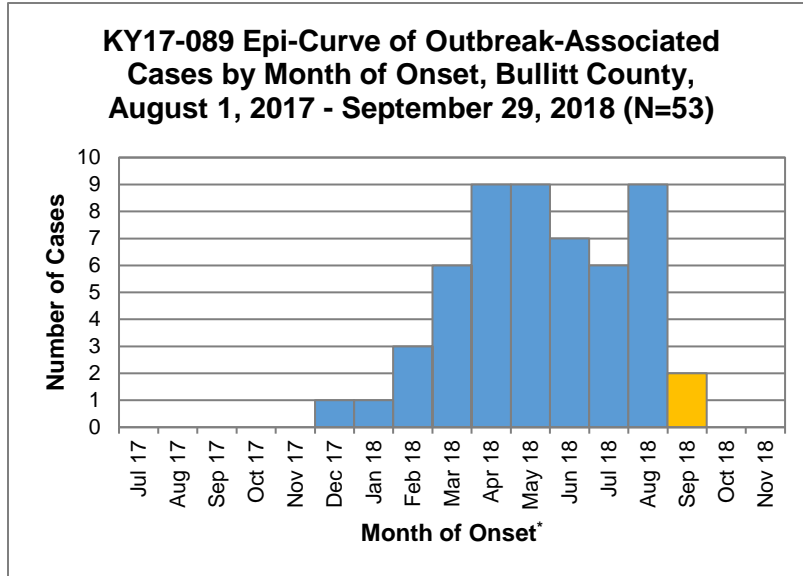
* Date of onset has been reported for 80.3% (or 1560/1943) of cases.

Figure 6: Case count comparison of acute hepatitis A cases, Jefferson County versus Non-Jefferson Counties

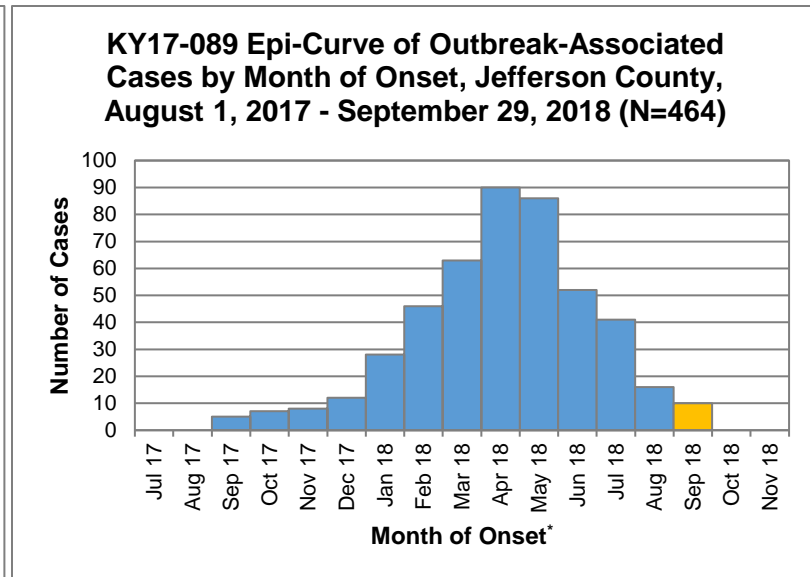
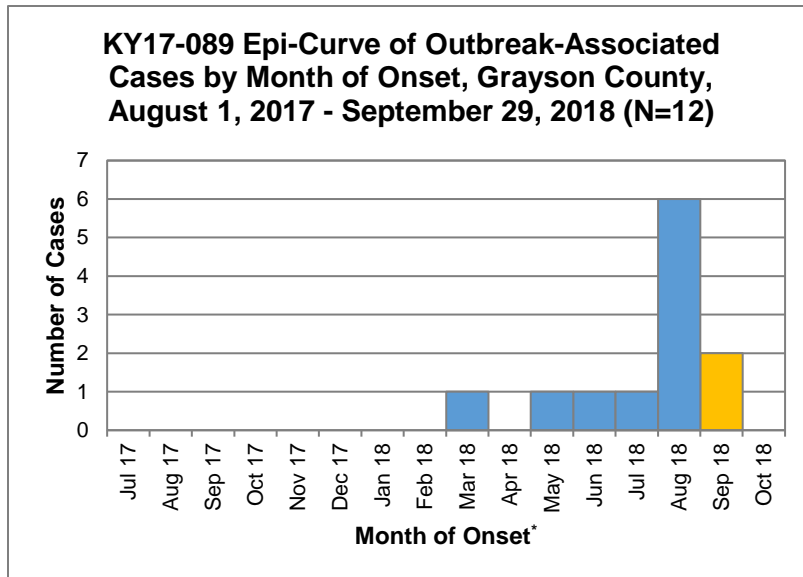
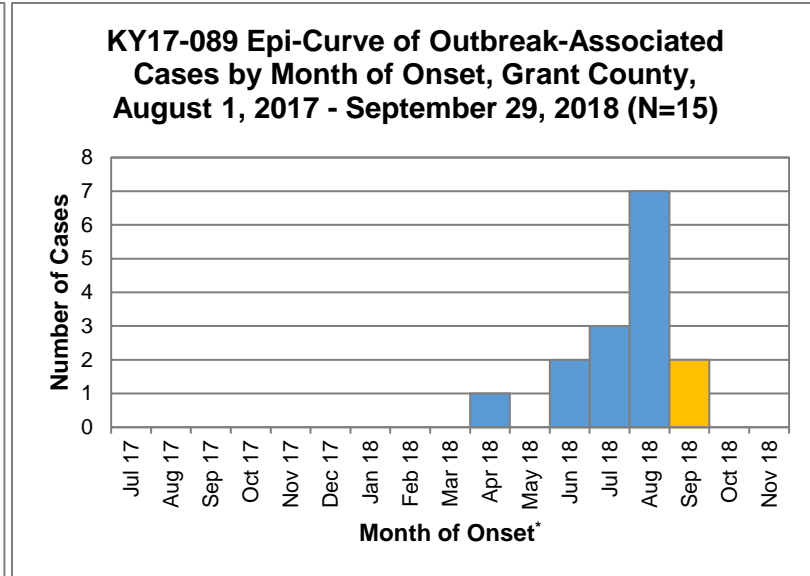
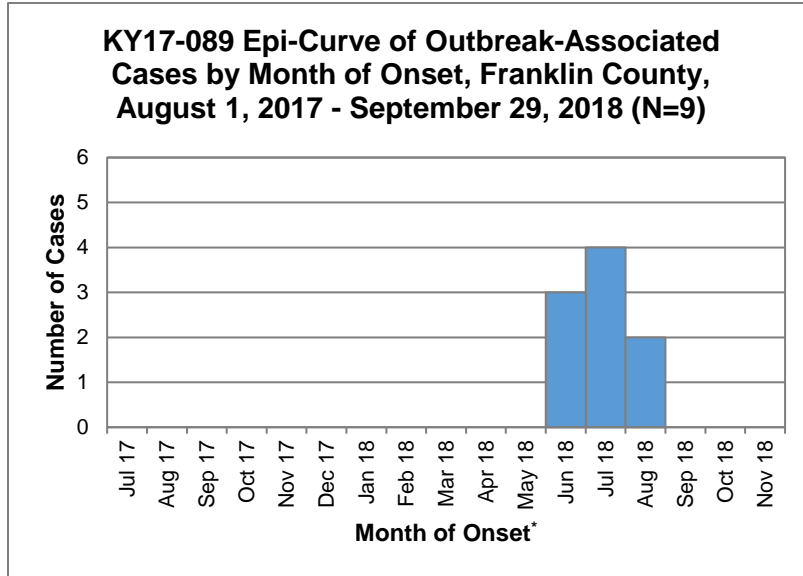


* MMWR weeks are based on date of specimen collection.

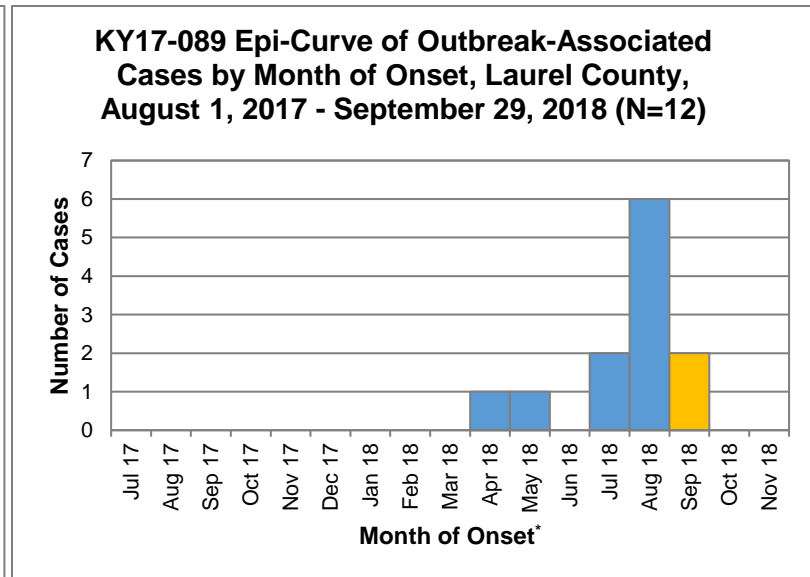
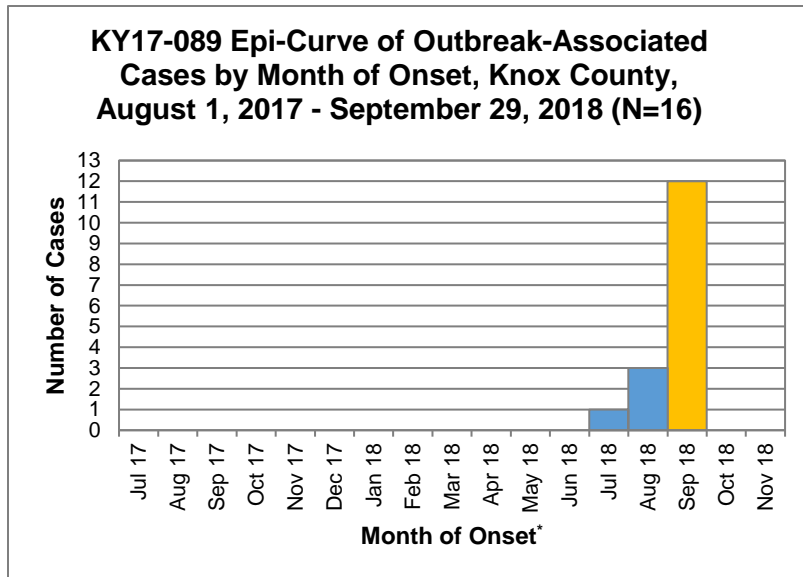
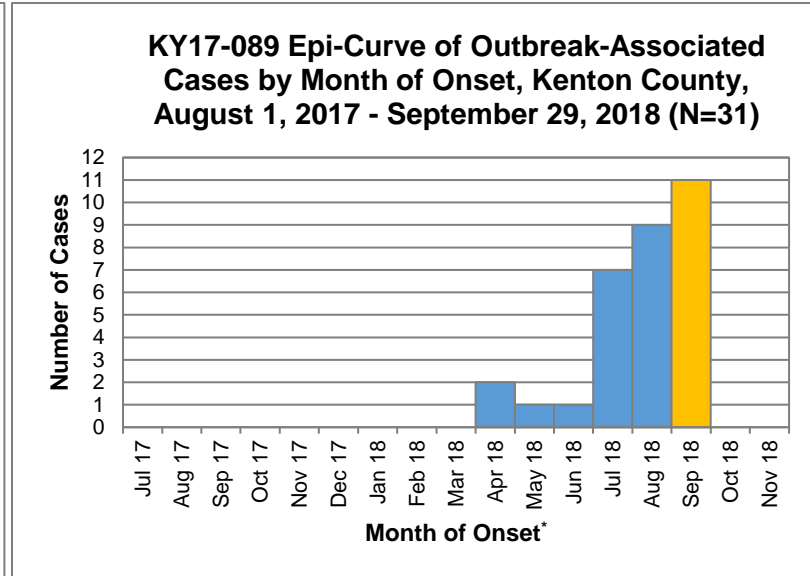
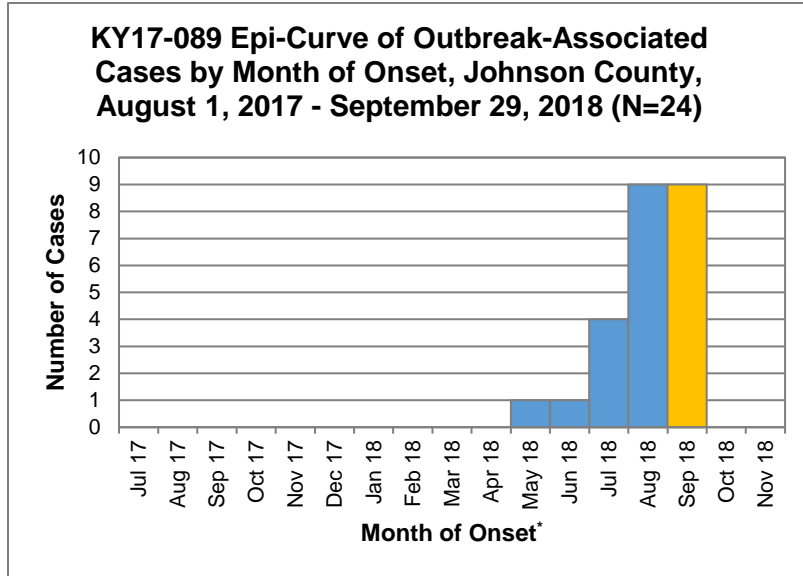
Figures 7-10: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Bullitt, Campbell, Fayette, and Floyd Counties)



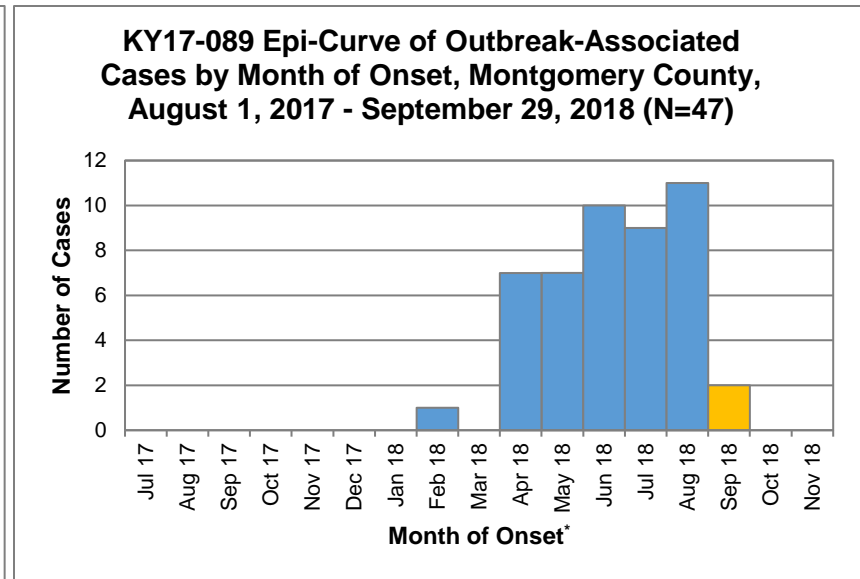
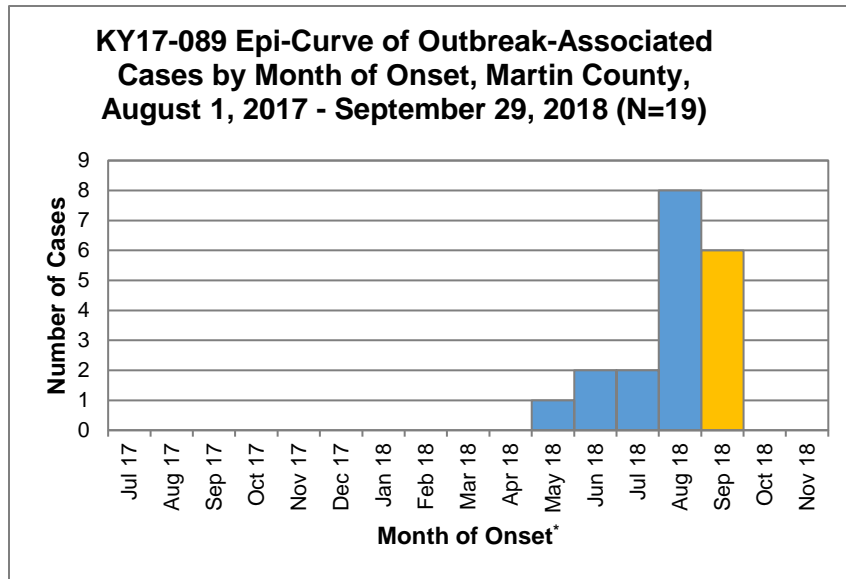
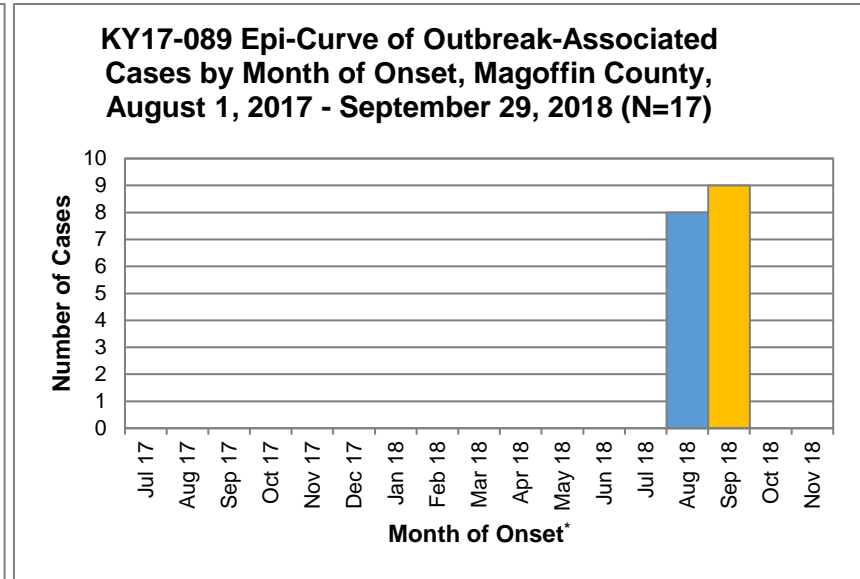
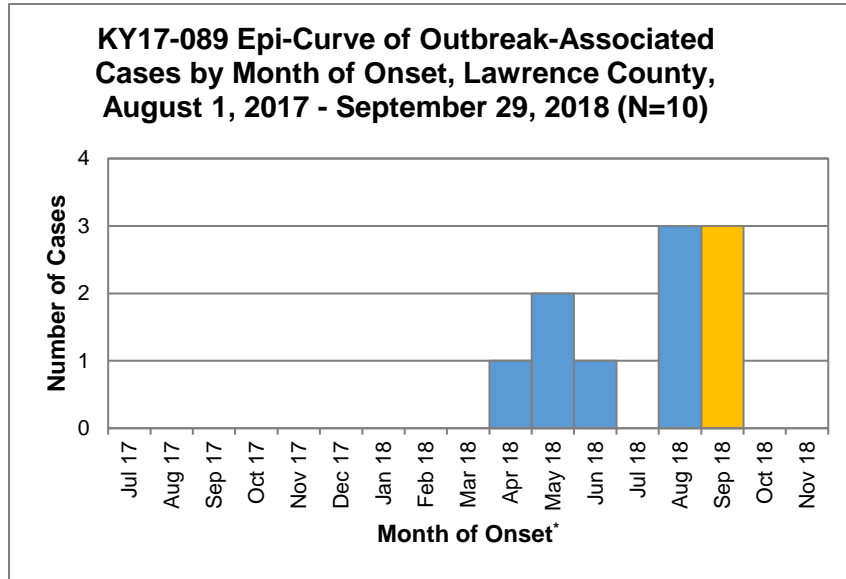
Figures 11-14: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Franklin, Grant, Grayson, and Jefferson Counties)



Figures 15-18: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Johnson, Kenton, Knox, and Laurel Counties)



Figures 19-22: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Lawrence, Magoffin, Martin, and Montgomery Counties)



Figures 23-25: Epidemic-curves (Epi-Curves) of Outbreak-Associated Cases in Counties with at least 10 reported cases in the last 50 days, by Month of Onset (Rowan, Taylor, and Whitley Counties)

